

# **LASER SCANNING** **PRODUCT GUIDE**

Industrial Holographic  
and Conventional Laser  
1D, Omnidirectional  
Bar Code Scanners



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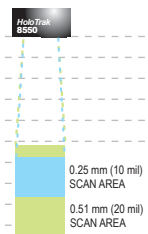
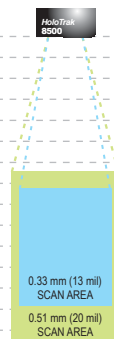



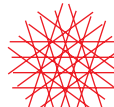
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## Laser Scanner Selection

Product	IS8000 Series HoloTrak	TECH Series
Technology	Holographic Laser	Conventional Optics
Bar Code Type	1D	1D
Bar Code Width (min)	0.25 mm (10 mil)	0.19 mm (7.5 mil)
Conveyor Speed (max)*	1.8 m/sec (350 fpm)	0.8 m/sec (150 fpm)
Sortation*	Yes	Yes
Presentation	Yes	Yes

\*Parcel Spacing and Bar Code Dependent

PRODUCT	IS8550 - HoloTrak	IS8500 - HoloTrak
0 mm (0") 127 mm (5") 254 mm (10") 381 mm (15") 508 mm (20") 635 mm (25") 762 mm (30") 889 mm (35") 1016 mm (40") 1143 mm (45") 1270 mm (50") 1397 mm (55") 1524 mm (60") 1651 mm (65") 1778 mm (70") 1905 mm (75") 2032 mm (80")		
<b>DEPTH OF FIELD</b>		
<b>BAR CODE(S)</b>		
<b>SCAN PATTERN</b>		
<b>OPERATIONAL</b>		
Light Source	5 VLDs - 658 nm $\pm$ 5 nm	5 VLDs - 658 nm $\pm$ 5 nm
Laser Power	7.8 mW (peak)	7.8 mW (peak)
Scan Area		
Depth of Scan Field	660 mm - 1260 mm (29" - 38")	914 mm - 1266 mm (36" - 64")
Width of Scan Field	310 mm (12.0")	559 mm (22.0")
@ Bar Width	0.25 mm (10 mil)	0.33 mm (13 mil)
Conveyor Speed (max - bar code dependent)	1.8 m/sec (350 ft/min)	1.8 m/sec (350 ft/min)
Scan Speed (max)	8,400 lines per second	5,600 lines per second
Focal Planes	4	4
Scan Lines / Focal Plane	20	20
Total Scan Lines	80	80
Decode Capability	Autodiscriminates all standard 1D bar codes	Autodiscriminates all standard 1D bar codes
System Interface	PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB	PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB
Bar Code Aspect Ratio	2.5:1	2.5:1
<b>MECHANICAL</b>		
Length	350 mm (13.8")	350 mm (13.8")
Width	338 mm (13.3")	338 mm (13.3")
Height	178 mm (7.0")	178 mm (7.0")
Weight	11.0 kg (25.0 lbs)	11.0 kg (25.0 lbs)
<b>ELECTRICAL</b>		
Input Voltage	12 VDC	12 VDC
Power	69 watts	69 watts
Operating Current	5.75 A	5.75 A
Laser Class (CDRH; EN)	Class II; Class 2	Class II; Class 2
EMC	FCC Class A; CISPR Class A	FCC Class A; CISPR Class A
<b>ENVIRONMENTAL</b>		
Operating Temperature	0°C to 40°C (32°F to 103°F)	0°C to 40°C (32°F to 103°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
Relative Humidity	5% to 95% non-condensing	5% to 95% non-condensing
Light Levels (maximum)	297 Lux (3200 footcandles)	297 Lux (3200 footcandles)

IS8400 - HoloTrak	IS8300 - HoloTrak	TECH 10	TECH 8	TECH 7
3 VLDs - 658 nm $\pm$ 5 nm 7.8 mW (peak)	5 VLDs - 658 nm $\pm$ 5 nm 7.8 mW (peak)	1 VLD - 650 nm $\pm$ 10 nm 0.85 mW (peak)	1 VLD - 650 nm $\pm$ 10 nm 0.55 mW (peak)	1 VLD - 650 nm $\pm$ 10 nm 0.68 mW (peak)
..... maximum performance area (shown as blue above) .....				
788 mm - 1600 mm (31" - 63") 457 mm (18.0") 0.33 mm (13 mil) 1.8 m/sec (350 ft/min) 3,660 lines per second 4 12 48 Autodiscriminates all standard 1D bar codes PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB 2.5:1	508 mm - 965 mm (20" - 38") 305 mm (12.0") 0.25 mm (10 mil) 1.8 m/sec (350 ft/min) 5,250 lines per second 5 15 75 Autodiscriminates all standard 1D bar codes PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB 2.5:1	254 mm - 559 mm (10" - 22") 280 mm (11") 0.19 mm (7.5 mil) 0.8 m/sec (150 ft/min) 1,250 lines per second 1 25 25 Autodiscriminates all standard 1D bar codes PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB 2.5:1	203 mm - 457 mm (8" - 18") 254 mm (10") 0.19 mm (7.5 mil) 0.8 m/sec (150 ft/min) 1,250 lines per second 1 20 20 Autodiscriminates all standard 1D bar codes PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB 2.5:1	76 mm - 254 mm (3" - 10") 152 mm (6") 0.19 mm (7.5 mil) 0.8 m/sec (150 ft/min) 2,000 lines per second 1 20 20 Autodiscriminates all standard 1D bar codes PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB 2.5:1
350 mm (13.8") 338 mm (13.3") 178 mm (7.0") 11.0 kg (25.0 lbs)	254 mm (10.0") 282 mm (11.1") 140 mm (5.5") 9.0 kg (20.0 lbs)	312 mm (12.3") 262 mm (10.3") 109 mm (4.3") 5.2 kg (11.5 lbs)	203 mm (8.0") 216 mm (8.5") 97 mm (3.8") 3.5 kg (7.8 lbs)	198 mm (7.8") 185 mm (7.8") 79 mm (3.1") 2.4 kg (5.2 lbs)
12 VDC 53 watts 4.42 A Class II; Class 2 FCC Class A; CISPR Class A	12 VDC 53 watts 4.42 A Class II; Class 2 FCC Class A; CISPR Class A	11-30 VDC 15 watts 0.75 A (at 20 VDC) Class IIa; Class 1 FCC Class A; CISPR Class A	11-30 VDC 15 watts 0.75 A (at 20 VDC) Class IIa; Class 1 FCC Class A; CISPR Class A	11-30 VDC 13 watts 0.65 A (at 20 VDC) Class IIa; Class 1 FCC Class A; CISPR Class A
0°C to 40°C (32°F to 103°F) -40°C to 60°C (-40°F to 140°F) 5% to 95% non-condensing 297 Lux (3200 footcandles)	0°C to 40°C (32°F to 103°F) -40°C to 60°C (-40°F to 140°F) 5% to 95% non-condensing 297 Lux (3200 footcandles)	0°C to 40°C (32°F to 103°F) -40°C to 60°C (-40°F to 140°F) 5% to 95% non-condensing 297 Lux (3200 footcandles)	0°C to 40°C (32°F to 103°F) -40°C to 60°C (-40°F to 140°F) 5% to 95% non-condensing 297 Lux (3200 footcandles)	0°C to 40°C (32°F to 103°F) -40°C to 60°C (-40°F to 140°F) 5% to 95% non-condensing 297 Lux (3200 footcandles)



## IS8000 Series HoloTrak®



**AOA's IS8000 Series HoloTrak** utilizes the power of holography. These fixed position scanners project a large, dense scan pattern virtually unattainable by traditional scanners. The IS8000 Series HoloTrak's offer models for reading low and high-density codes, at low or high speeds, projecting thousands of scan lines per second in multiple depths of field - all accomplished by AOA's exclusive device, the Holodisc. The IS8000 Series HoloTrak scanners include four models: IS8300, IS8400, IS8500 and IS8550.

All of these models include AOA's exclusive holographic architecture. The models differ in the areas of scan pattern, aspect ratio of the bar code, depth of field, and number of scan lines created per second. This industrial product group is designed to increase productivity by providing a hands-free solution to scanning. Applications such as order fulfillment, returns processing, shipping and receiving,

and work in process are only a few areas where the IS8000 Series proven performance is unprecedented.

IS8000 Series scanners are also an ideal solution for scanning parcels on a conveyor system where the conveyor speed reaches a maximum of 1.8 meters per second (350 feet per minute).

### *A p p l i c a t i o n s :*

- **Shipping/receiving**
- **Walk under presentation**
- **Conveyor scanning**
- **Work in process**
- **Baggage handling**
- **Sortation**
- **Postal service centers**

## quick specs - IS8500

Light Source	Five (5) Visible Laser Diodes 658 nm $\pm$ 5 nm
Laser Power	7.8 mW (peak)
Depth of Scan Field	914 mm - 1,266 mm (36" - 64") for 0.33 mm (13 mil) bar codes
Width of Scan Field	560 mm (22")
Scan Speed	5,600 scan lines per second
Scan Pattern	4 fields of 20 parallel lines (omnidirectional)
System Interfaces	PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB
Minimum Bar Width	0.33 mm (13 mil)
Conveyor Speed (max)	1.8 m/sec (350 ft/min)
Dimensions	350 mm L, 338 mm W, 178 mm H (13.8" L, 13.3" W, 7.0" H)
Input Voltage	12 VDC
Operating Power	43 W
Operating Temperature	0° C to 40° C (32° F to 103° F)
Laser Class	CDRH: Class II; EN: Class 2
EMC	FCC Class A; CISPR Class A

*\*Full specifications for all IS8000 Series models available on page 1.*

### Features:

- Holographic scanning technology
- Omnidirectional scan pattern
- Various models to fit your application
- Large scan volume - long depth of field
- Maximum uptime
- Easy set up
- Can be linked together for multi-sided scanning

### Benefits:













- Producing a large volume scan area
- High first pass read rates
- Lower cost of ownership
- Fewer service calls
- Save on installation costs



Product	IS8000 Series HoloTrak
Technology	Holographic Laser
Bar Code Type	1D
Bar Code Width (min)	0.25 mm (10 mil)
Conveyor Speed (max)*	1.8 m/sec (350 ft/min)
Sortation*	Yes
Presentation	Yes

\*Parcel Spacing and Bar Code Dependent



PRODUCT		IS8550 - HoloTrak	IS8500 - HoloTrak	IS8400 - HoloTrak	IS8300 - HoloTrak
DEPTH OF FIELD	0 mm (0")				
	127 mm (5")				
	254 mm (10")				
	381 mm (15")				
	508 mm (20")				
	635 mm (25")				
	762 mm (30")				
	889 mm (35")				
	1016 mm (40")				
	1143 mm (45")				
	1270 mm (50")				
	1397 mm (55")				
	1524 mm (60")				
	1651 mm (65")				
	1778 mm (70")				
	1905 mm (75")				
	2032 mm (80")				
BAR CODE(S)					
SCAN PATTERN					



## TECH Series



**AOA's TECH Series** scanners are designed for short-range scanning. These rugged laser scanners begin scanning just a few inches from the face of the scanner and project a depth of scan field reach up to 560 mm (22") from the face. Capable of being mounted in any position, these scanners are a popular choice for warehouse and distribution centers and manufacturing plants. These scanners are the only AOA industrial category using conventional scanning optics because holography which excels at a longer-range is not necessary for close up bar code reading. Available in three models, each project a specific "close-range" depth of field. Two of the three models are available as a "raster" version or an omnidirectional scan pattern version. All models are water and shock-resistant and come with user's guide, communication cable/power supply and mounting stand. The TECH scanners are a low cost solution to scanning needs for many applications.

### *Models :*

- **TECH 10 (omni)**
- **TECH 8 (omni)**
- **TECH 7 (omni)**
- **TECH 8 (raster)**
- **TECH 7 (raster)**

### *Applications :*

- **Low speed conveyor scanning**
- **Shipping/receiving**
- **Work in process**
- **Order fulfillment/processing**
- **Hand presentation**
- **Close-up scanning**
- **Postal service centers**

## quick specs - TECH 8

Light Source	One (1) Visible Laser Diodes 650 nm $\pm$ 10 nm
Laser Power	0.55 mW (peak)
Depth of Scan Field	203 mm - 457 mm (8" - 18") for 0.19 mm (7.5 mil) bar codes
Width of Scan Field	254 mm (10")
Scan Speed	1,250 scan lines per second
Scan Pattern	4 fields of 20 parallel lines (omnidirectional)
System Interfaces	PC Keyboard Wedge, RS232, Stand Alone Keyboard, USB
Minimum Bar Width	0.19 mm (7.5 mil)
Conveyor Speed (max)	0.8 m/sec (150 ft/min)
Dimensions	203 mm L, 216 mm W, 97 mm H (8.0" L, 8.5" W, 3.8" H)
Input Voltage	11-30 VDC
Operating Power	9 W
Operating Temperature	0° C to 40° C (32° F to 104° F)
Laser Class	CDRH: Class IIa; EN: Class 1
EMC	FCC Class A; CISPR Class A

*\*Full specifications for all TECH Series models available on page 1.*





### Features:

- Designed for close-range scanning
- Omnidirectional or raster scan pattern models
- Compact size with easily accessible connectors
- High performance and reliability
- Designed for industrial environments

### Benefits:

- Fits into small spaces
- Extremely rugged to withstand being bumped by moving packages
- Affordable omnidirectional scanning



Product	TECH Series
Technology	Conventional Optics
Bar Code Type	1D
Bar Code Width (min)	0.19 mm (7.5 mil)
Conveyor Speed (max)*	0.8 m/sec (150 ft/min)
Sortation*	Yes
Presentation	Yes

\*Parcel Spacing and Bar Code Dependent



PRODUCT		TECH 10	TECH 8	TECH 7
DEPTH OF FIELD	0 mm (0")			
	127 mm (5")			
	254 mm (10")			
	381 mm (15")			
	508 mm (20")			
	635 mm (25")			
	762 mm (30")			
	889 mm (35")			
	1016 mm (40")			
	1143 mm (45")			
	1270 mm (50")			
	1397 mm (55")			
	1524 mm (60")			
	1651 mm (65")			
	1778 mm (70")			
	1905 mm (75")			
	2032 mm (80")			
BAR CODE(S)				
SCAN PATTERN				

## Multi-Sided Scanning Systems

### *Features:*

- First pass read rates of 99+%
- Belt coverage configurable by linking scanners together
- Worldwide site surveys can be conducted by AOA's application engineers
- Customized fabrication-installation of framework
- Capable of scanning at conveyor speeds up to 2.8 meters per second (550 feet per minute)\*
- Parcel sortation and tracking
- Weighing stations
- Parcel dimensioning without a break in the belt

### *Benefits:*

- Expert, error free installation
- Industry's best price-to-performance ratio
- Reduces labor costs...no intervention required
- Maximum uptime
- Improves productivity, faster throughput
- Control costs
- Easy to justify return on investment
- Revenue recovery
- Transportation logistics
- Route planning

### *Applications:*

- High-speed conveyor scanning, sortation and tracking systems
- Parcel handling
- Retail, wholesale and manufacturing
- Warehousing distribution centers
- Postal service centers
- Airport baggage handling

\* AOA's iQ, vision-based, scanners are required for speeds above 1.8 meters per second (350 feet per minute)

AOA's most comprehensive scanning system to date, multi-sided scanning offers a hands-free, worry-free solution for fully automated parcel identification and handling.

Multi-sided scanning is unique in design, function, and complexity based on the needs of the user. The basic need for a multi-sided scanning array would be for scanning parcels on a high-speed conveyor system utilizing a sortation device as part of that system. Since the needs of a client can vary from scanning two sides of a parcel, to three sides, on up to all six sides, the systems are customized to meet the specific needs of a client. For six sided scanning applications, AOA uses a combination of laser and camera-based scanning systems to provide maximum performance and reliability. In addition to scanning the bar code, the scanning array offers such options as parcel tracking, dimensioning, weighing, and labeling. AOA's team of technical personnel can either integrate the scanners into an existing conveyor scanning system or assist in creating a new system.







**AOA's QTrace** dimensioning system measures length, width, height and volume of parcels, even irregular shaped parcels, as they travel on a conveyor belt at speeds up to 2.8 meters per second (550 feet per minute). This system mounts easily over a conveyor and requires no break in the belt.

QTrace employs laser doppler imaging which uses two amplitude modulated lasers, operating at two separate wavelengths, that scan across the conveyor belt. This imaging does much more than just dimensioning! The system can identify when two parcels are touching one another as well as detecting if parcels are side-by-side as they move down the conveyor belt. The combined parcel location, singulation detection, and dimensional information is imperative to maximizing the performance of sortation systems.

Additional benefits derived from QTrace include revenue recovery that ensures proper fees are charged based on the parcel dimensions and volume. With accurate dimensioning and proper sortation data, efficient and cost-effective truck-load planning and routing can be formulated.



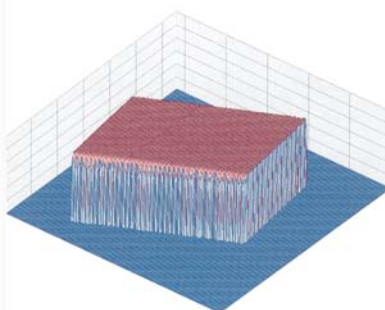
#### *Features:*

- Measures length, width and height of parcels
- Accurate discrimination of multiple packages
- Provides low resolution imaging of parcel and label

#### *Benefits:*

- No break in belt
- No belt level components
- No external sensors
- Revenue recovery

QTrace provides 3D parcel dimension and volume information.



## IDU Series Controllers

The **IDU Series** are "control centers" for AOA's TECH Series and IS8000 HoloTrak Series scanners. The units are basically a power supply source and communication center for the scanners. The display device will scroll the bar code data as scanned or as it is transmitted to the host and can be configured to display separate information relating to the application. Package counts, read rates and diagnostic error codes can be displayed with some changes to the display management software. As a standard, only the bar code data is displayed. The built-in multiplexor can control the data stream from multiple scanners, generate no read and multiple read logic messages and identify the location from which data was sent.

### *Features :*

- **Light weight - compact housing**
- **Built-in climate controls**
- **Vacuum fluorescent display**
- **Integrated computer, power supply, communications ports, peripheral ports**

### **IDU1004 model only:**

- **Built-in 4-line by 80 character display**
- **6 ports, maximum 8 scanners (with master/slave combination)**
- **Optional ethernet output**
- **Operating temperatures up to 50° C (122° F)**

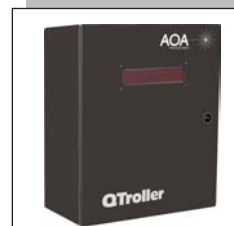
### **IDU1002 model only:**

- **Optional 2-line by 20 character display**
- **4 ports, maximum 4 scanners**
- **Operating temperatures up to 40° C (104° F)**

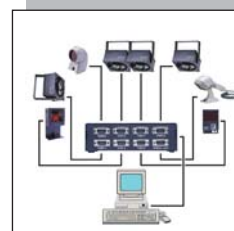


## Options & Accessories

The **QTroller** is a "control center" for bar code scanning and parcel tracking when used in conjunction with AOA's scanners and dimensioners. In order for scanning and tracking to take place data needs to be gathered, decoded, processed and tracked in real time and then transmitted to the host system. QTroller does exactly that. In addition to acquiring the data from the scanners, QTroller provides the power necessary to operate as many as four scanners. If an integrated scale system is being used, QTroller can simultaneously supply the power to the scale and up to three scanners. As part of AOA's QTrak bar code tracking system, QTroller's on board computer receives data from the scanners, along with conveyor belt speed and package sensor information.



The **MI8000 HoloPlexor** is a port and data concentrator used to simplify the installation of multiple scanners. The HoloPlexor is available in two models: MI8004 allows up to 4 scanners to be connected to one host while the MI8008 allows for up to 8 scanners to be connected to one host. It accommodates applications that require multiple scanning locations, but have only one data input port available on the host device. The HoloPlexor, and all of the scanners connected to it, operate as if it were a single scanner. Setup and configuration commands sent to the HoloPlexor will program all of the scanners.



The **MX001 Industrial Control Interface** provides a way to connect an external object sensor to the scanner and a way for the scanner to control an external device through an electronic switch (a TRIAC). This enables the scanner to sense the presence of objects to be scanned and then provide a line voltage output signal if the scanned object meets preprogrammed conditions. The MX001 can be configured to support any object sensor that can supply a 12V, 5V or 10mA output signal. It will also support switch closure (relay) type sensor output. Additionally, the MX001 can provide 12V DC power (at 200mA maximum) to a low voltage, DC type sensor unit making external sensor power supplies unnecessary.



An **External High-Volume Speaker** is available for the TECH Series scanners and the IS8000 Series HoloTrak scanners. These product lines come standard with a built in 80dB speaker. By connecting an external speaker these scanners increase in volume to 90dB. The external speaker also includes red and green indicator lamps, similar to those on the scanner itself, to provide additional visual indication of scanner operation. A supporting port must be added to the scanner at the time of original purchase.



**Cables for Master/Slave Operation** are an economical way to connect two scanners to cover a wide conveyor or to connect a top scanner and a side scanner to read two sides of a package. A single identification will be reported, even if both scanners read a bar code. They may be joined together using a MI8000 HoloPlexor. TECH scanners may be slaved to an IS8000 Series HoloTrak master. Two TECH scanners cannot be joined as master and slave.





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LPG001